REMARKS

Applicants thank the Examiner for examining the claims of the present application and finding that claims 30-33 and 44-49 are allowable and that claims 3-10, 15, 23-28, 40-43, 54 and 58 contain allowable subject matter. Applicants respectfully request reconsideration of the Examiner's rejections of claims 1-2, 11-14, 16-22, 29, 34-39, 50-53, 55-57 and 59-60 in view of the following remarks.

Rejection of claims 1-2, 11-14, 16-22, 29, 34-39, 50-53, 55-57 and 59-60 under 35 U.S.C. § 103(a)

The third Office action rejects claims 1-2, 11-14, 16-22, 29, 34-39, 50-53, 55-57 and 59-60 under 35 U.S.C. § 103(a) as being obvious over Rajski et al., "Test Data Decompression for Multiple Scan Designs with Boundary Scan," 47 IEEE Transactions on Computers (November 1998) (the "Rajski article") in view of U.S. Patent No. 6,026,508 ("Craft"). Specifically, with respect to claims 19-22, 29, 50-53, and 55, the Examiner contends that the Rajski article discloses the invention substantially as claimed, but does not specifically disclose "decompressing the compressed test pattern as the compressed test pattern is being provided." The Examiner then contends that "Craft discloses a decompressor for decompressing a compressed data into decompressed data as the compressed data is being provided." For support, the Examiner cites column 3, line 64 through column 4, line 7 of Craft. The Examiner then contends that claims 1-2, 11-14, 16-18, 36-39, 56-57, and 59-60 are unpatentable under this same rationale. This rejection is respectfully traversed.

For the sake of convenient presentation, Applicants will address the Examiner's rejection as it pertains to two groups of rejected claims: (1) claims 1-2, 11-14, 16-22, 29, 34-39, 56-57, and 59-60, and (2) claims 50-53 and 55.

Claims 1-2, 11-14, 16-22, 29, 34-39, 56-57, and 59-60

The Examiner's rejection of claims 1-2, 11-14, 16-22, 29, 34-39, 56-57, and 59-60 should be removed because Craft (in combination with the Rajski article) does not teach or suggest the respective requirements of these claims. *See* MPEP 2143.03.

Independent claim 1 and its dependent claims 2, 11-14, 16-18, and 39 require "decompressing the compressed test pattern into a decompressed test pattern of bits as the compressed test pattern is being provided." Independent claim 19 and its dependent claims 20-21 disclose a "means for decompressing the compressed test pattern into a decompressed test pattern of bits as the compressed test pattern is being provided." Independent claim 22 and its dependent claim 29 disclose "a decompressor adapted to receive a compressed test pattern of bits and decompress the test pattern into a decompressed test pattern of bits as the compressed test pattern is being received." Independent claim 34 and its dependent claim 35 disclose a "decompressor coupled to the storage, the decompressor adapted to receive a compressed test pattern of bits provided from the storage and to decompress the test pattern into a decompressed test pattern of bits as the compressed test pattern is being received." Independent claim 36 and its dependent claim 37 disclose "decompressing within the tester the compressed test pattern into a decompressed test pattern of bits as the compressed test pattern is being provided." Independent claim 38 discloses "decompressing the compressed test pattern into a decompressed test pattern of bits as the compressed test pattern is being provided." Independent claim 56 and its dependent claims 57 and 59-60 disclose "decompressing the bits of the compressed test pattern as they are received." The highlighted limitations are not taught or suggested by either the Rajski article or the Craft reference.

The decompressor disclosed in the cited section of Craft does not teach a decompressor that can decompress a compressed test pattern "as the compressed test pattern is being received" or "provided." Instead, the cited section of Craft provides no description of how the decompressor operates when compressed data is being provided. Craft merely states: "The compressed result of a portion of the data from the compressor 7-1 is provided to both the decompressor 7-2 and the storage device 11. . . . The decompressor 7-2 of the compressor/decompressor 7 reconstructs the original data. Consequently, compression and decompression typically occur simultaneously." Craft at col. 4, ll. 6-9. Moreover, in FIG. 1 of Craft, the illustrated decompressor comprises nothing more than a block labeled "Decompressor 7-2." No structure is illustrated, and no components are shown. Consequently, no decompression of a compressed test pattern as the compressed test pattern is being provided or received is taught or suggested by the cited section of Craft.

A logical reading of the cited section of Craft that is consistent with Craft's statement concerning simultaneous compression and decompression is that the compressor 7-1 compresses a portion of data into compressed data and provides the compressed data to the decompressor 7-2 before the decompressor 7-2 operates to decompress the compressed data. It is submitted that simultaneous compression and decompression simply means that the decompressor 7-2 can decompress compressed data while the compressor 7-1 is compressing another portion of uncompressed data. After the decompressor 7-2 and the compressor 7-1 complete their simultaneous operations, then, the just-compressed data is provided to the decompressor 7-2 for decompression and the next portion of data to be compressed is provided to the compressor 7-1. Once the new data is loaded, simultaneous decompression and compression begins again. Nothing in Craft indicates that it should be interpreted otherwise, and, as explained below, other sections in Craft indicate that this interpretation is correct.

In the two paragraphs following the cited section in Craft, a discussion is provided of how the compression/decompression scheme of FIG. 1 operates to decompress data and verify the integrity of the decompressed data. Craft at col. 4, ll. 10-24. Because this discussion focuses more on the decompressor 7-2 shown in FIG. 1 than the section cited by the Examiner, it offers insight into how the decompressor 7-2 in the cited section must operate. In relevant part, Craft provides: "For a decompression operation, data is provided to the decompressor 7-2 by the storage device 11. The sumcheck unit 5 builds a sumcheck on the compressed data. The decompressor 7-2 then decompresses the data." By stating that "the decompressor 7-2 then decompresses the data," Craft clearly teaches that the decompressor 7-2 decompresses data after it is provided, not as it is being provided.

Accordingly, the Craft reference does not teach or suggest decompression of a compressed test pattern as the compressed test pattern is being provided or received.

Additionally, the Examiner is not entitled to use Applicants' own disclosure as a road map for reading information into a reference that is not shown or suggested by the reference itself. Without the teachings of the present application, the cited section of Craft simply would not be combined with the Rajski article. Craft is directed toward confirming that compressed data which is going to be stored accurately represents the original data, and that compressed data which has been stored is accurately retrieved and decompressed without error. Craft at col. 1, ll. 19-24. With the system described at column 3, line 61 through column 4, line 32 of Craft, a

sumcheck unit 5 builds a sumcheck on the original data provided by host the 3. The compressor 7-1 then compresses the data. Craft at col. 3, ll. 67; col. 4, ll. 1-2. Compressed data is then provided to both the storage device 11 and to the decompressor 7-2. The decompressor 7-2 then reconstructs the original data. The reconstructed data is typically discarded after a sumcheck unit 9 builds a sumcheck from the reconstructed original data. Craft at col. 4, ll. 10-12. The sumcheck built on the original data is then compared to the sumcheck built on the reconstructed original data to ensure that the original data and the reconstructed data are the same. Craft at col. 4, ll. 12-15.

This approach would not be considered in a method or system involving, for example, the acts of providing a compressed test pattern of bits, decompressing the test pattern as the compressed test pattern is being provided, and applying the decompressed test pattern to scan chains of a circuit-under-test. As recited above, the reconstructed original data (*i.e.*, the decompressed original data) is typically discarded from the decompressor 7-2, and certainly would not be applied to any circuit-under-test since its only purpose is to verify the integrity of the compressed data. Indeed, the decompression that takes place in the section of Craft cited by the Examiner (column 3, line 64 through column 4, line 7) is solely for the purpose of generating a checksum for use in verifying that the compression is accurate. One would have to ignore the purpose and teachings of Craft to even consider Craft in combination with the Rajski article. In the absence of the teachings of the present application, this simply would not be done.

Accordingly, Craft would not be combined by one of ordinary skill in the art with the Rajski article. For at least these reasons, claims 1-2, 11-14, 16-22, 29, 34-39, 56-57, and 59-60 are in condition for allowance, and the 35 U.S.C. § 103(a) rejection should be removed. It should also be noted that these claims are each independently patentable because of the unique and nonobvious requirements of the combinations set forth in each claim.

Claims 50-53 and 55

The Examiner's rejection of claims 50-53 and 55 should be removed because Craft does not teach or suggest the limitations of claims 50-53 and 55. *See* MPEP 2143.03.

Independent claim 50 and its dependent claims 51-53 and 55 disclose a "phase shifter adapted to receive two or more bits of a compressed test pattern and to logically combine the two or more bits to produce a decompressed test pattern," and "scan chains coupled to the phase shifter and adapted to receive the decompressed test pattern." As discussed more fully above, Craft provides no description of the actual structure of the decompressor cited by the Examiner. Craft at col. 3, ll. 61-67; col. 4, ll. 1-9.

Accordingly, Craft does not teach or suggest a circuit having the limitations of claims 50-53 and 55. Therefore, for at least this reason, claims 50-53 and 55 are in condition for allowance, and the 35 U.S.C. § 103(a) rejection should be removed. These claims are also independently patentable.

CONCLUSION

For the reasons stated above, it is believed that the application is in condition for allowance, and such action is respectfully requested. If any further issues remain concerning this application, the Examiner is invited to call the undersigned attorney to discus such matters.

Respectfully submitted,

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